

Amendments to the Claims

This listing of claims will replace all prior versions, and listings, of claims in the application:

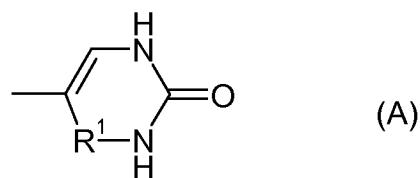
Listing of Claims:

1. (Currently Amended) A process for the production of an ^{18}F -labelled tracer which comprises treatment of a solid support-bound precursor of formula (I):

SOLID SUPPORT-LINKER- I^+ -TRACER (I)

Y^-

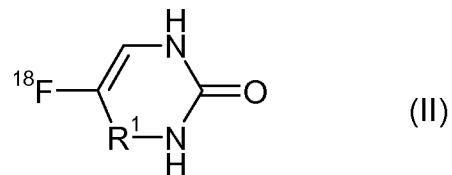
wherein the TRACER is of formula (A):



~~or an amine protected derivative thereof~~, wherein Y^- is an anion, preferably trifluoromethylsulphonate (triflate) anion; and

R^1 is either (i) a group $\text{CH}-\text{NP}^{1\text{A}}\text{P}^{2\text{A}}$ in which $\text{P}^{1\text{A}}$ and $\text{P}^{2\text{A}}$ are each independently hydrogen or a protecting group, or (ii) a carbonyl group;

with $^{18}\text{F}^-$ to produce the labelled tracer of formula (II)



~~or an amine protected derivative thereof~~, wherein R^1 is as defined for the compound of formula (I);

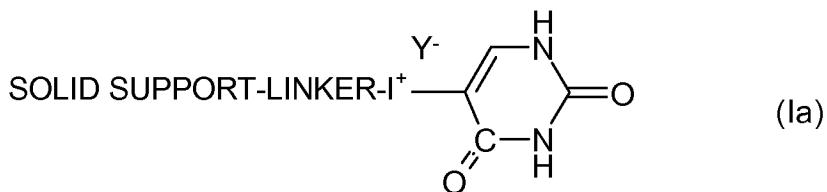
optionally followed by:

(i) removal of excess $^{18}\text{F}^-$, for example by ion-exchange chromatography; and/or

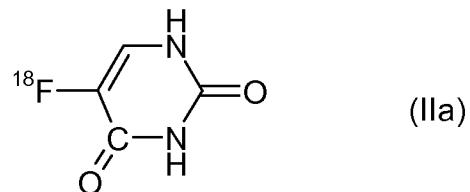
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- (ii) removal of any protecting groups; and/or
- (iii) removal of organic solvent; and/or
- (iv) formulation of the resultant compound of formula (II) as an aqueous solution.

2. (Currently Amended) A process according to claim 1 for the production of $5^{[18]F]$ fluorouracil which comprises treatment of a solid support-bound precursor of formula (Ia):



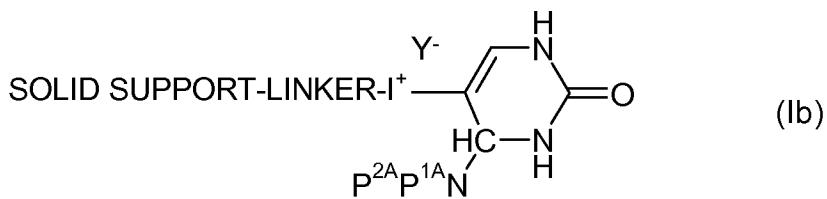
~~or an amine protected derivative thereof, wherein Y^- is an anion, preferably trifluoromethylsulphonate (triflate) anion;~~
with $^{18}F^-$ to produce the labelled tracer of formula (IIa)



~~or an amine protected derivative thereof,~~ optionally followed by:

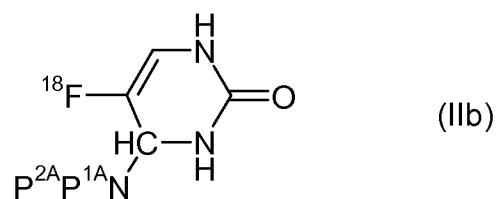
- (i) removal of excess $^{18}F^-$, for example by ion-exchange chromatography; and/or
- (ii) removal of organic solvent; and/or
- (iii) removal of any protecting groups; and/or
- (iv) formulation of the resultant compound of formula (IIa) as an aqueous solution.

3. (Withdrawn) A process according to claim 1 for the production of $5^{[18]F}$ fluorocytosine which comprises treatment of a solid support-bound precursor of formula (Ib):



or an amine protected derivative thereof, wherein Y⁻ is an anion, preferably trifluoromethylsulphonate (triflate) anion, P^{1A} and P^{2A} are independently hydrogen or a protecting group;

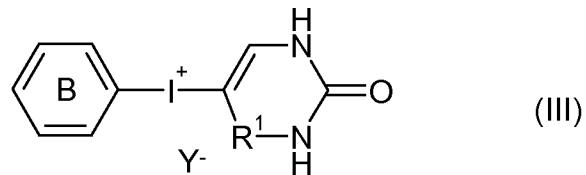
with ¹⁸F⁻ to produce the labelled tracer of formula (IIb)

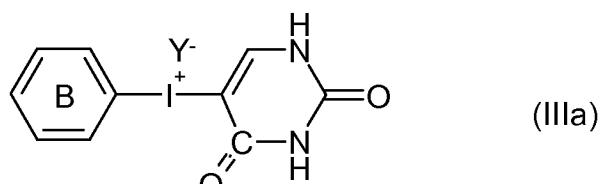


or an amine protected derivative thereof, wherein P^{1A} and P^{2A} are as defined for the compound of formula (Ib), optionally followed by:

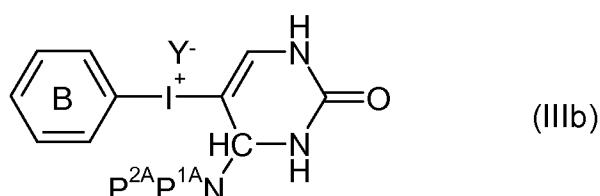
- (i) removal of excess ¹⁸F⁻, for example by ion-exchange chromatography; and/or
- (ii) removal of organic solvent; and/or
- (iii) removal of any protecting groups; and/or
- (iv) formulation of the resultant compound of formula (IIb) as an aqueous solution.

4. (Withdrawn) A process for the production of an ¹⁸F-labelled tracer which comprises treatment of a compound of formula (III), (IIIa), or (IIIb):





(IIIa)



(IIIb)

or an amine protected derivative thereof, wherein R¹, P^{2A}, P^{1A}, and Y⁻ are as defined in claim 1, and phenyl ring B is optionally substituted with one to five substituents independently selected from halo, C₁₋₆ alkyl, C₁₋₆ haloalkyl, hydroxy, C₁₋₆ alkoxy, amino, C₁₋₆ hydroxyalkyl, and nitro;

with ¹⁸F⁻ to produce the labelled tracer of formula (II), (IIa), or (IIb) respectively as defined in claims 1 to 3 or an amine protected derivative thereof, optionally followed by:

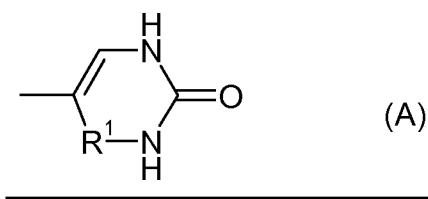
- (i) removal of excess ¹⁸F⁻, for example by ion-exchange chromatography; and/or
- (ii) removal of any protecting groups; and/or
- (iii) removal of organic solvent; and/or
- (iv) formulation of the resultant compound of formula (II), (IIa), or (IIb) as an aqueous solution.

5. (Currently Amended) A process for the production of a ¹⁸F-labelled tracer of formula (II), according to claim 1, for use in PET which comprises treatment of a solid support-bound precursor of formula (I):

SOLID SUPPORT-LINKER-I⁺-TRACER (I)

Y⁻

wherein the TRACER is of formula (A):



wherein Y^- is an anion, preferably trifluoromethylsulphonate (triflate) anion; and R^1 is either (i) a group $\text{CH}-\text{NP}^{1\Delta}\text{P}^{2\Delta}$ in which $\text{P}^{1\Delta}$ and $\text{P}^{2\Delta}$ are each independently hydrogen or a protecting group, or (ii) a carbonyl group; wherein R^1 is as defined for the compound of formula (I); optionally followed by:

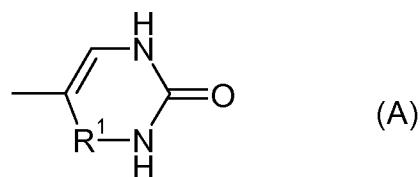
- (i) removal of excess $^{18}\text{F}^-$, for example by ion-exchange chromatography; and/or
- (ii) removal of any protecting groups; and/or
- (iii) removal of organic solvent; and/or
- (iv) formulation of the resultant compound of formula (II) as an aqueous solution.

6. (Currently Amended) A compound of formula (I):

SOLID SUPPORT-LINKER- I^+ -TRACER (I)

Y^-

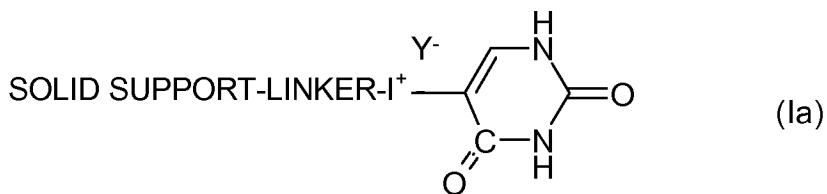
wherein the TRACER is of formula (A):



or an amine protected derivative thereof, wherein Y^- is an anion, preferably trifluoromethylsulphonate (triflate) anion; and R^1 is either (i) a group $\text{CH}-\text{NP}^{1\Delta}\text{P}^{2\Delta}$ in which $\text{P}^{1\Delta}$ and $\text{P}^{2\Delta}$ are each independently hydrogen or a protecting group, or (ii) a carbonyl group.

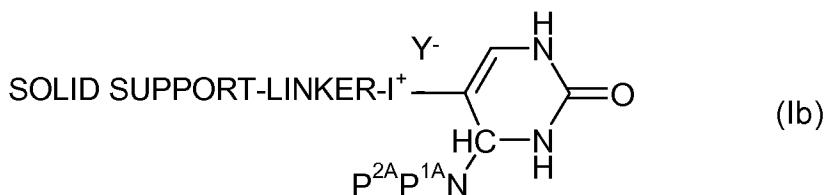
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7. (Currently Amended) A compound of formula (Ia):



~~or an amine protected derivative thereof~~, wherein Y^- is an anion, preferably trifluoromethylsulphonate (triflate) anion.

8. (Withdrawn) A compound of formula (Ib):



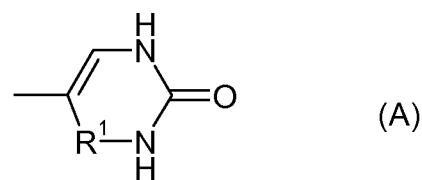
or an amine protected derivative thereof, wherein Y^- is an anion, preferably trifluoromethylsulphonate (triflate) anion, $\text{P}^{1\text{A}}$ and $\text{P}^{2\text{A}}$ are independently hydrogen or a protecting group.

9. (Currently Amended) A radiopharmaceutical kit for the preparation of an ^{18}F -labelled tracer for use in PET, which comprises treatment of a solid support-bound precursor of formula (I):

SOLID SUPPORT-LINKER- I^+ -TRACER (I)

Y^-

wherein the TRACER is of formula (A):



wherein Y^- is an anion, preferably trifluoromethylsulphonate (triflate) anion; and R^1 is either (i) a group $\text{CH}-\text{NP}^{1\Delta}\text{P}^{2\Delta}$ in which $\text{P}^{1\Delta}$ and $\text{P}^{2\Delta}$ are each independently hydrogen or a protecting group, or (ii) a carbonyl group;

wherein R^1 is as defined for the compound of formula (I);

which comprises:

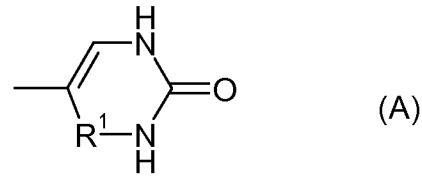
- (i) a vessel containing a compound of formula (I), as defined in claim 1, or an amine protected derivative thereof; and
- (ii) means for eluting the vessel with a source of $^{18}\text{F}^-$;
- (iii) an ion-exchange cartridge for removal of excess $^{18}\text{F}^-$; and optionally
- (iv) a cartridge for solid-phase deprotection of the resultant product of formula (II), claim 1.

10. (Currently Amended) A cartridge for a radiopharmaceutical kit for the preparation of an ^{18}F -labelled tracer for use in PET which comprises treatment of a solid support-bound precursor of formula (I):

SOLID SUPPORT-LINKER-I⁺-TRACER (I)

Y^-

wherein the TRACER is of formula (A):



wherein Y^- is an anion, preferably trifluoromethylsulphonate (triflate) anion; and R^1 is either (i) a group $\text{CH}-\text{NP}^{1\Delta}\text{P}^{2\Delta}$ in which $\text{P}^{1\Delta}$ and $\text{P}^{2\Delta}$ are each independently hydrogen or a protecting group, or (ii) a carbonyl group;

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wherein R¹ is as defined for the compound of formula (I); further wherein

- (i) a vessel containing a compound of formula (I), as defined in claim 1, ~~or an amine protected derivative thereof;~~ and
- (ii) means for eluting the vessel with a source of $^{18}\text{F}^-$.

11. (Withdrawn) A method for obtaining a diagnostic PET image which comprises the step of using a radiopharmaceutical kit according to claim 9.

12. (Previously presented) A method for obtaining a diagnostic PET image which comprises the step of using a cartridge for a radiopharmaceutical kit according to claim 10.